

DRAFT Course Descriptions and Learning Outcomes Texas Higher Education Coordinating Board August 2011

Materials for the 2011 ACGM Learning Outcomes Project

Faculty groups from these disciplines have reviewed course syllabi from two-year and four-year public institutions and developed new course descriptions and learning outcomes for eventual inclusion in the *ACGM*. Toward that goal, we invite you to review and comment upon these draft descriptions and outcomes. The public comment period will begin August 18, 2011 and will end on September 19, 2011.

Please email your comments to Ms. Linda McDonough at Linda.McDonough@thehb.state.tx.us, and she will collect the comments and prepare them for a final review by the faculty work groups.

Government (GOVT)

GOVT 2107 Federal and Texas Constitutions

This course is a study of the US and state constitutions, with special emphasis on Texas.

Pre-requisite: By permission only. Enrollment limited to students who have already completed a minimum of 6 SCH of GOVT courses but have not satisfied the statutory requirement for study of the federal and state constitutions. Ensures compliance with TEC §51.301.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the origin and development of constitutional democracy in the United States.
2. Explain the origin and development of the Texas constitution.
3. Analyze the similarities and differences between the current U.S. and Texas constitutions.

GOVT 2301 American Government I (Federal and Texas Constitutions)

Origin and development of the U.S. and Texas constitutions, structure and powers of national, state, and local government including the legislative, executive, and judicial branches, and federalism.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the origin and development of constitutional democracy in the United States.
2. Explain the origin and development of the Texas constitution.
3. Describe separation of powers and checks and balances in both theory and practice.
4. Demonstrate knowledge of the legislative, executive, and judicial branches of federal and state government.
5. Demonstrate an understanding of state and local political systems and their relationship with the federal government.
6. Demonstrate an understanding of federalism.

GOVT 2302 American Government II (Federal and Texas Topics)

Examination of political participation, the election process, public policy, civil liberties, and civil rights in the US and Texas.

Learning Outcomes

Upon successful completion of this course, students will:

1. Evaluate the role of public opinion, interest groups, and political parties.
2. Analyze the national, state, and local election processes.
3. Describe the rights and responsibilities of citizens.
4. Analyze issues and policies in U.S. and Texas politics.

***** GOVT 2301 American Government I (Federal & Texas constitutions)
GOVT 2302 American Government II (Federal & Texas topics)
Recommended for deletion due to student transfer problems.*****

GOVT 2304 Introduction to Political Science

Introductory survey of the discipline of political science focusing on the scope and methods of the field, and the substantive topics in the discipline including the theoretical foundations of politics, political interaction, political institutions, and how political systems function.

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate a working knowledge of political terms and concepts.
2. Define political science and identify the subfields.
3. Compare and contrast different political systems and institutions.
4. Identify the methods used to study politics.
5. Critically interpret and analyze contemporary political issues and problems.

GOVT 2305 Federal Government (Federal Constitution and Topics)

Origin and development of the U.S. Constitution, structure and powers of the national government including the legislative, executive, and judicial branches, federalism, political participation, the national election process, public policy, civil liberties, and civil rights.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the origin and development of constitutional democracy in the United States.
2. Demonstrate an understanding of our federal system.
3. Describe separation of powers and checks and balances in both theory and practice.
4. Demonstrate knowledge of the legislative, executive, and judicial branches of the federal government.
5. Evaluate the role of public opinion, interest groups, and political parties
6. Analyze the election process.
7. Describe the rights and responsibilities of citizens
8. Analyze issues and policies in U.S. politics.

GOVT 2306 Texas Government (Texas Constitution and Topics)

Origin and development of the Texas Constitution, structure and powers of state and local government, federalism and inter-governmental relations, political participation, the election process, public policy, and the political culture of Texas

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the origin and development of the Texas constitution.
2. Demonstrate an understanding of state and local political systems and their relationship with the federal government.
3. Describe separation of powers and checks and balances in both theory and practice in Texas.
4. Demonstrate knowledge of the legislative, executive, and judicial branches of Texas government.
5. Evaluate the role of public opinion, interest groups, and political parties in Texas.
6. Analyze the state and local election process.
7. Describe the rights and responsibilities of citizens
8. Analyze issues, policies, and political culture of Texas.

English (ENGL)

ENGL 1301 Composition I

Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus on writing the academic essay as a vehicle for learning, communicating, and critical analysis.

Learning Outcomes:

Upon successful completion of this course, students will:

1. Demonstrate knowledge of individual and collaborative writing processes.
2. Develop ideas with appropriate support and attribution.
3. Write in a style appropriate to audience and purpose.
4. Read, reflect, and respond critically to a variety of texts.
5. Use Edited American English in academic essays.

ENGL 1302 Composition II

Intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual, and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions.

Prerequisite: ENGL 1301 or its equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate knowledge of individual and collaborative research processes.
2. Develop ideas and synthesize primary and secondary sources within focused academic arguments, including one or more research-based essays.
3. Analyze, interpret, and evaluate a variety of texts for the ethical and logical uses of evidence.
4. Write in a style that clearly communicates meaning, builds credibility, and inspires belief or action.
5. Apply the conventions of style manuals for specific academic disciplines (e.g., APA, CMS, MLA, etc.)

ENGL 2311 Technical and Business Writing

Intensive study of and practice in professional settings. Focus on the types of documents necessary to make decisions and take action on the job, such as proposals, reports, instructions, policies and procedures, e-mail messages, letters, and descriptions of products and services. Practice individual and collaborative processes involved in the creation of ethical and efficient documents.

Learning Outcomes

Upon successful completion of this course, students will:

1. Recognize, analyze, and accommodate diverse audiences.
2. Produce documents appropriate to audience, purpose, and genre.
3. Analyze the ethical responsibilities involved in technical communication.
4. Locate, evaluate, and incorporate pertinent information.
5. Develop verbal, visual, and multimedia materials as necessary, in individual and/or collaborative projects, as appropriate.
6. Edit for appropriate style, including attention to word choice, sentence structure, punctuation, and spelling.
7. Design and test documents for easy reading and navigation.

*****ENGL 2314 Technical & Business Writing I**

ENGL 2315 Technical & Business Writing II

Recommended for deletion due to low enrollments statewide***

ENGL 2326 American Literature (single-semester course)

A survey of American literature from the period of exploration and settlement to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.

5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2327 American Literature I

A survey of American literature from the period of exploration and settlement through the Civil War. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2328 American Literature II

A survey of American literature from the Civil War to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2321 British Literature (single-semester course)

A survey of the development of British literature from the Anglo-Saxon period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.

2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2322 British Literature I

A survey of the development of British literature from the Anglo-Saxon period to the Eighteenth Century. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2323 British Literature II

A survey of the development of British literature from the Romantic period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2331 World Literature (single-semester course)

A survey of world literature from the ancient world to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.

3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENGL 2332 World Literature I

A survey of world literature from the ancient world through the sixteenth century. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

ENLG 2333 – World Literature II

A survey of world literature from the seventeenth century to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Prerequisite: Composition II or equivalent

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate familiarity with literary periods and their legacy of important ideas.
2. Identify key ideas, representative authors and works, significant historical and cultural events, and characteristic perspectives and attitudes expressed in the literature of different periods or regions.
3. Demonstrate an understanding of literary works as expressions of individual and human values within the social, political, cultural, and religious contexts of different literary periods.
4. Demonstrate knowledge of major genres and forms of literature.
5. Understand the development of characteristic forms and styles of expression during different historical periods and in different regions.
6. Develop an appreciation for the aesthetic principles that guide the scope and variety of works in the arts and humanities.
7. Analyze and synthesize aesthetic, historical, formal, and ideological approaches to interpreting literature through class discussion, presentations, written assignments, and exams.
8. Articulate an informed personal reaction to works in the arts and humanities.
9. Produce critical essays about the assigned readings. These essays should support a debatable thesis, utilize primary and secondary sources, document and cite those sources according to MLA style, avoid plagiarism, and express ideas in clear and grammatically correct prose.

History (HIST)

HIST 1301 United States History I

A survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction period. United States History I includes the study of pre-Columbian, colonial, revolutionary, early national, slavery and sectionalism, and the Civil War/Reconstruction eras. Themes that may be addressed in United States History I include: American settlement and diversity, American culture, religion, civil and human rights, technological change, economic change, immigration and migration, and creation of the federal government.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, cultural, and global forces on this period of United States history.

HIST 1302 United States History II

A survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War/Reconstruction era to the present. United States History II examines industrialization, immigration, world wars, the Great Depression, Cold War and post-Cold War eras. Themes that may be addressed in United States History II include: American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, cultural, and global forces on this period of United States history.

HIST 2301 Texas History

A survey of the political, social, economic, cultural, and intellectual history of Texas from the pre-Columbian era to the present. Themes that may be addressed in Texas History include: Spanish colonization and Spanish Texas; Mexican Texas; the Republic of Texas; statehood and secession; oil, industrialization, and urbanization; civil rights; and modern Texas.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, cultural, and global forces on this period of Texas history.

HIST 2311 Western Civilization I

A survey of the social, political, economic, cultural, religious, and intellectual history of Europe and the Mediterranean world from human origins to the 17th century. Themes that should be addressed in Western Civilization I include the cultural legacies of Mesopotamia, Egypt, Greece, Rome, Byzantium, Islamic civilizations, and Europe through the Middle Ages, Renaissance, and Reformations.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, and cultural forces on this period of western history.

HIST 2322 Western Civilization II

A survey of the social, political, economic, cultural, religious, and intellectual history of Europe and the Mediterranean world from the 17th century to the modern era. Themes that should be addressed in Western Civilization II include absolutism and constitutionalism, growth of nation states, the Enlightenment, revolutions, classical liberalism, industrialization, imperialism, global conflict, the Cold War, and globalism.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, and cultural forces on this period of western history.

HIST 2321 World Civilizations I

A survey of the social, political, economic, cultural, religious, and intellectual history of the world from the emergence of human cultures through the 15th century. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include the emergence of early societies, the rise of civilizations, the development of political and legal systems, religion and philosophy, economic systems and trans-regional networks of exchange. The course emphasizes the development, interaction, and impact of global exchange.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, cultural, and global forces on this period of world history.

HIST 2322 World Civilizations II

A survey of the social, political, economic, cultural, religious, and intellectual history of the world from the 15th century to the present. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include maritime exploration and transoceanic empires, nation/state formation and industrialization, imperialism, global conflicts and resolutions, and global economic integration. The course emphasizes the development, interaction, and impact of global exchange.

Learning Outcomes

Upon successful completion of this course, students will:

1. Create an argument through the use of historical evidence.
2. Analyze and interpret primary and secondary sources.
3. Analyze the effects of historical, social, political, economic, cultural, and global forces on this period of world history.

HIST 2323 Eastern Civilizations (Single-semester Course)

*****Recommended for deletion due to low enrollments statewide*****

Economics (ECON)

ECON 1301 Introduction to Economics

A survey of microeconomic and macroeconomic principles for non-business majors. Microeconomic topics will include supply and demand, consumer behavior, price and output decisions by firms under various market structures, factor markets, market failures, international trade, and exchange rates. Macroeconomic topics will include national income, unemployment, inflation, business cycles, aggregate supply and demand, monetary and fiscal policy, and economic growth.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the scarcity/choice problem existing throughout the world.

2. Describe the economic system of the United States.
3. Utilize the basic demand and supply model to predict the effects of different market forces on equilibrium price and quantity.
4. Identify the four market structures and their effects on firm behavior.
5. Explain the concept of market failure and the alternatives to market processes in resource allocations.
6. Define and calculate gross domestic product, inflation rate, and unemployment rate.
7. Use aggregate supply and aggregate demand to predict the effects of fiscal and monetary policy actions on output, unemployment, and inflation.
8. Explain the benefits and costs of international trade and the role of international trade in the U.S. economy.

ECON 1303 Consumer Economics

The Economics Work Group recommends that ECON 1303 Consumer Economics be removed from the Economics section of the ACGM. Most colleges and universities are no longer offering a course covering this area in their Economics departments. The topics listed under this heading have largely been divided into two different courses. First, colleges and universities with Human Development and/or Consumer Science programs are offering courses covering many of these topics. Second, many business schools are offering courses in personal finance within their Finance departments. The committee members agree that these are valuable courses, but we think they are more accurately categorized under these disciplines and should be removed from the Economics section of the ACGM. We suggest, in particular, that the existing course in Personal Finance (BUSI 1307 Personal Finance, cross-listed as HECO 1307) is sufficient for this purpose.

ECON 2301 Principles of Macroeconomics

An analysis of the economy as a whole including measurement and determination of national income, inflation, and unemployment. Other topics include international trade, economic growth, business cycles, fiscal policy, and monetary policy.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the role of scarcity, specialization, opportunity cost, and cost/benefit analysis in economic decision-making.
2. Identify the determinants of supply and demand; demonstrate the impact of shifts in both market supply and demand curves on equilibrium price and output.
3. Compare alternative economic systems with respect to the role of government and the private sector.
4. Define and measure national income and rates of unemployment and inflation.
5. Identify the phases of the business cycle and the problems caused by cyclical fluctuations in the market economy.
6. Define money and the money supply; describe the process of money creation by the banking system and the role of the central bank.

7. Construct the aggregate demand and aggregate supply model of the macro economy and use it to illustrate macroeconomic problems and potential monetary and fiscal policy solutions.
8. Explain the mechanics and institutions of international trade and their impact on the macro economy.
9. Define economic growth and identify sources of economic growth.

ECON 2302 Principles of Microeconomics

Analysis of the behavior of individual economic agents, including consumer behavior and demand, producer behavior and supply, price and output decisions by firms under various market structures, factor markets, market failures, and international trade.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the role of scarcity, specialization, opportunity cost, and cost/benefit analysis in economic decision-making.
2. Identify the determinants of supply and demand; demonstrate the impact of shifts in both market supply and demand curves on equilibrium price and output.
3. Summarize the law of diminishing marginal utility; describe the process of utility maximization.
4. Calculate supply and demand elasticities, identify the determinants of price elasticity of demand and supply, and demonstrate the relationship between elasticity and total revenue.
5. Describe the production function and the Law of Diminishing Marginal Productivity; calculate and graph short-run and long-run costs of production.
6. Identify the four market structures by characteristics; calculate and graph the profit maximizing price and quantity in the output markets by use of marginal analysis.
7. Determine the profit maximizing price and quantity of resources in factor markets under perfect and imperfect competition by use of marginal analysis.
8. Describe governmental efforts to address market failure such as monopoly power, asymmetric information, externalities, and public goods.
9. Demonstrate the benefits of free trade using the concept of comparative advantage.

Mathematics (MATH)

MATH 1314 College Algebra (3 SCH version)

MATH 1414 College Algebra (4 SCH version)

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included.

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate understanding and knowledge of properties of functions, which include domain and range, operations, compositions, and inverses.
2. Recognize and apply polynomial, rational, radical, exponential, and logarithmic functions and solve related equations.
3. Apply graphing techniques.
4. Evaluate all roots of higher degree polynomial and rational functions.
5. Recognize, solve and apply systems of linear equations using matrices.

MATH 2312 Pre-Calculus Math (3 SCH version)

MATH 2412 Pre-Calculus Math (4 SCH version)

In-depth combined study of algebra and trigonometry for calculus readiness. Other topics may be included.

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate understanding and knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.

MATH 1316 Plane Trigonometry

In-depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates, and parametric equations may be included.

Learning Outcomes

Upon successful completion of this course, students will:

1. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
2. Graph trigonometric functions and their transformations.
3. Prove trigonometric identities.
4. Solve trigonometric equations.
5. Solve right and oblique triangles.
6. Use the concepts of trigonometry to solve applications.

MATH 1342 Elementary Statistical Methods (3 SCH version, freshman level)

MATH 1442 Elementary Statistical Methods (4 SCH version, freshman level)

MATH 2342 Elementary Statistical Methods (3 SCH version, sophomore level)

MATH 2442 Elementary Statistical Methods (4 SCH version, sophomore level)

Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals, and hypothesis testing. Use of appropriate technology is recommended.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine, and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze, and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

The following MATH courses were revised as part of the Voluntary Transfer Compact for Electrical Engineering

MATH 2305/2405 Discrete Mathematics

A course designed to prepare math, computer science, and engineering majors for a background in abstraction, notation, and critical thinking for the mathematics most directly related to computer science. Topics include: logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, combinatorics, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques.

Prerequisite: MATH 2313/2413/2513—Calculus I (with a grade of “C” or higher)

Learning Outcomes

Upon successful completion of this course, students will:

1. Construct mathematical arguments using logical connectives and quantifiers.
2. Verify the correctness of an argument using propositional and predicate logic and truth tables.
3. Demonstrate the ability to solve problems using counting techniques and combinatorics in the context of discrete probability.
4. Solve problems involving recurrence relations and generating functions.
5. Use graphs and trees as tools to visualize and simplify situations.
6. Perform operations on discrete structures such as sets, functions, relations, and sequences.
7. Construct proofs using direct proof, proof by contraposition, proof by contradiction, proof by cases, and mathematical induction.
8. Apply algorithms and use definitions to solve problems to prove statements in elementary number theory.

MATH 2318 Linear Algebra

Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering.

Pre-requisite: MATH 2414—Calculus II

Learning Outcomes

Upon successful completion of this course, students will:

1. Solve systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion.
2. Carry out matrix operations, including inverses and determinants.

3. Demonstrate understanding of the concepts of vector space and subspace.
4. Demonstrate understanding of linear independence, span, and basis.
5. Determine eigenvalues and eigenvectors and solve problems involving eigenvalues.
6. Apply principles of matrix algebra to linear transformations.
7. Demonstrate application of inner products and associated norms.

Voluntary Transfer Compact Electrical Engineering DRAFT Course Descriptions and Learning Outcomes

NOTE: Fundamentals of Circuit Analysis ENGR 2307 and Fundamentals of Circuit Analysis Laboratory ENGR 2107 are proposed for deletion from the ACGM.

MATH 2305/2405 Discrete Mathematics

A course designed to prepare math, computer science, and engineering majors for a background in abstraction, notation, and critical thinking for the mathematics most directly related to computer science. Topics include: logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, combinatorics, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques.

Prerequisite: MATH 2313/2413/2513—Calculus I (with a grade of “C” or higher)

Learning Outcomes

Upon successful completion of this course, students will:

1. Construct mathematical arguments using logical connectives and quantifiers.
2. Verify the correctness of an argument using propositional and predicate logic and truth tables.
3. Demonstrate the ability to solve problems using counting techniques and combinatorics in the context of discrete probability.
4. Solve problems involving recurrence relations and generating functions.
5. Use graphs and trees as tools to visualize and simplify situations.
6. Perform operations on discrete structures such as sets, functions, relations, and sequences.
7. Construct proofs using direct proof, proof by contraposition, proof by contradiction, proof by cases, and mathematical induction.
8. Apply algorithms and use definitions to solve problems to prove statements in elementary number theory.

ENGR 2305 Electrical Circuits I

Principles of electrical circuits and systems. Basic circuit elements (resistance, inductance, mutual inductance, capacitance, independent and dependent controlled voltage, and current sources). Topology of electrical networks; Kirchhoff’s laws; node and mesh analysis; DC circuit analysis; operational amplifiers; transient and sinusoidal steady-state analysis; AC circuit analysis; first- and second-order circuits; Bode plots; and use of computer simulation software to solve circuit problems.

Prerequisite or Co-requisite: MATH 2320—Differential Equations

Prerequisites: PHYS 2325—University Physics I; PHYS 2125—University Physics I Laboratory; MATH 2414—Calculus II

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain basic electrical concepts, including electric charge, current, electrical potential, electrical power, and energy
2. Apply concepts of electric network topology: nodes, branches, and loops to solve circuit problems, including the use of computer simulation.
3. Analyze circuits with ideal, independent, and controlled voltage and current sources.
4. Apply Kirchhoff's voltage and current laws to the analysis of electric circuits.
5. Explain the relationship of voltage and current in resistors, capacitors, inductors, and mutual inductors.
6. Derive and solve the governing differential equations for a time-domain first-order and second-order circuit, including singularity function source models.
7. Determine the Thevenin or Norton equivalent of a given network that may include passive devices, dependent sources, and independent sources in combination.
8. Analyze first and second order AC and DC circuits for steady-state and transient response in the time domain and frequency domain.
9. Derive relations for and calculate the gain and input impedance of a given operational amplifier circuit for both DC and frequency domain AC circuits using an ideal operational amplifier model.
10. Apply computer mathematical and simulation programs to solve circuit problems.

ENGR 2105 Electrical Circuits I Laboratory (THIS IS A NEW COURSE)

Laboratory experiments supporting theoretical principles presented in ENGR 2305 involving DC and AC circuit theory, network theorems, time, and frequency domain circuit analysis. Introduction to principles and operation of basic laboratory equipment; laboratory report preparation.

Co-requisite: ENGR 2305—Electrical Circuits I

Learning Outcomes

Upon successful completion of this course, students will:

1. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
2. Conduct basic laboratory experiments involving electrical circuits using laboratory test equipment such as multimeters, power supplies, signal generators, and oscilloscopes.
3. Explain the concepts of Thévenin-equivalent circuits and linear superposition and apply them to laboratory measurements.
4. Predict and measure the transient and sinusoidal steady-state responses of simple RC and RLC circuits.
5. Predict the behavior and make measurements of simple operational-amplifier circuits.
6. Relate physical observations and measurements involving electrical circuits to theoretical principles.

7. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.

Note: Electric Circuits I and Electric Circuits I Laboratory can be taught as a single 4-SCH course.

ENGR 2405 Electric Circuits I (Lecture and Lab)

This lecture and lab course should combine all of the elements of ENGR 2305 Electrical Circuits I and ENGR 2105 Electrical Circuits I Lab, including the learning outcomes listed for both courses.

ENGR 2308 Engineering Economics (THIS IS A NEW COURSE)

Methods used for determining the comparative financial desirability of engineering alternatives. Provides the student with the basic tools required to analyze engineering alternatives in terms of their worth and cost, an essential element of engineering practice. The student is introduced to the concept of the time value of money and the methodology of basic engineering economy techniques. The course will address some aspects of sustainability and will provide the student with the background to enable them to pass the Engineering Economy portion of the Fundamentals of Engineering exam.

Prerequisites: MATH 2413—Calculus I

Prerequisites or Co-requisites: ECON 2301—Principles of Macroeconomics or ECON 2302—Principles of Microeconomics

Learning Outcomes

Upon successful completion of this course, students will:

1. Apply different methods to calculate the time value of money.
2. Construct cash flow diagrams for a given problem.
3. Estimate total revenue, total cost, and break even points.
4. Calculate the uniform series payment, given principal, interest rate, and pay period.
5. Perform project evaluation, including cost/benefit analysis.
6. Articulate principles of taxation and depreciation.
7. Perform capital budgeting, cost comparisons, and replacement analyses.
8. Solve problems at a level consistent with expectations of the engineering economics portion of the Fundamentals of Engineering exam.

ENGR 2306 Introduction to Digital Systems (THIS IS A NEW COURSE)

Introduction to theory and design of digital logic, circuits, and systems. Number systems, operations and codes; logic gates; Boolean Algebra and logic simplification; Karnaugh maps; combinational logic; functions of combinational Logic; flip-flops and related devices; counters; shift registers; sequential logic; memory and storage.

Co-requisite: ENGR 2106—Introduction to Digital Systems Laboratory

Prerequisite: MATH 1314—College Algebra or equivalent academic preparation

Learning Outcomes

Upon successful completion of this course, students will:

1. Utilize binary and hexadecimal numbers.
2. Solve problems involving digital codes, operations, and number systems.
3. Define, describe, and analyze fundamentals of Boolean algebra and digital logic gates.
4. Describe, analyze, design, and fabricate combinational logic circuits.
5. Describe, analyze, design, and fabricate sequential logic circuits.
6. Describe and explain the fundamentals of memory operations.
7. Apply computer mathematical and/or simulation tools to solve digital systems problems.

ENGR 2106 Introduction to Digital Systems Laboratory (THIS IS A NEW COURSE)

Basic laboratory experiments supporting theoretical principles presented in ENGR 2306 involving design, construction, and analysis of combinational and sequential digital circuits and systems, including logic gates, adders, multiplexers, encoders, decoders, arithmetic logic units, latches, flip-flops, registers, and counters; preparation of laboratory reports.

Co-requisite: ENGR 2306—Introduction to Digital Systems

Learning Outcomes

Upon successful completion of this course, students will:

1. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
2. Conduct basic laboratory experiments involving design and construction of digital circuits and systems.
3. Relate physical observations and measurements involving digital circuits and systems to theoretical principles.
4. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
5. Design fundamental experiments involving principles of digital circuits and systems.
6. Identify and apply appropriate sources of information for conducting laboratory experiments involving digital circuits and systems.
7. Apply computer mathematical and/or simulation tools to solve digital systems problems.

Note: Introduction to Digital Systems and Introduction to Digital Systems Laboratory can be taught as a single 4-SCH course.

Note: Some baccalaureate engineering programs will accept the course ENGR 2306 for transfer credit and as applicable to the engineering major, while others will accept the course for transfer credit only. The student is advised to check with the school to which he or she wants to transfer for specific applicability of this course to the engineering major.

ENGR 2406 Introduction to Digital Systems (Lecture and Lab)

This lecture and lab course should combine all of the elements of ENGR 2306 Introduction to Digital Systems and ENGR 2106 Introduction to Digital Systems Lab, including the learning outcomes listed for both courses.

MATH 2318 Linear Algebra

Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering.

Pre-requisite: MATH 2414—Calculus II

Learning Outcomes

Upon successful completion of this course, students will:

1. Solve systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion.
2. Carry out matrix operations, including inverses and determinants.
3. Demonstrate understanding of the concepts of vector space and subspace.
4. Demonstrate understanding of linear independence, span, and basis.
5. Determine eigenvalues and eigenvectors and solve problems involving eigenvalues.
6. Apply principles of matrix algebra to linear transformations.
7. Demonstrate application of inner products and associated norms.

ENGR 1307 Plane Surveying

Development of skills necessary to recognize and solve problems in surveying; introduction and use of various precision instruments used for surveying, including level, theodolites, electronic distance measuring equipment, and total stations for collecting field data; introduction of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) and their use in surveying; and use of graphic design software, such as AutoCAD or Microstation, in surveying problems.

Prerequisites: MATH 1316—Plane Trigonometry or equivalent, ENGR 1304—Engineering Graphics I

Learning Outcomes

Upon successful completion of this course, students will:

1. State the different classifications and types of surveys.

2. Apply principles of trigonometry to surveying problems.
3. Perform necessary unit conversions in surveying.
4. Demonstrate skills necessary for field work such as safety, note keeping, and instrument care.
5. Operate surveying equipment such as level, theodolite, total station, electronic distance measuring equipment, and surveying tape.
6. Determine the expected value and error bounds associated with measurements.
7. Perform horizontal and vertical measurements using standard surveying equipment for distance, angles, and contours.
8. Perform traverse and area calculations, including traverse closure.
9. Perform field layout for typical civil engineering applications such as highway geometrics and land development.
10. Present surveying data in graphical form using engineering design software such as AutoCAD or Microstation.
11. Discuss the basic principles of GIS and GPS systems and their application to field surveying problems.

COSC 1320 "C" Programming (3 SCH version)

COSC 1420 "C" Programming (4 SCH version)

Introduces the fundamental concepts of structured programming in the C language. Topics include data types; control structures; functions, structures, arrays, pointers, pointer arithmetic, unions, and files; the mechanics of running, testing, and debugging programs; introduction to programming; and introduction to the historical and social context of computing.

Prerequisite: None

Learning Outcomes

Upon successful completion of this course, students will:

1. Analyze and explain the behavior of simple programs involving the fundamental programming constructs.
2. Modify and expand short programs that use standard conditional and iterative control structures and functions; choose appropriate conditional and iteration constructs for a given programming task.
3. Design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, and the definition of functions.
4. Apply the techniques of structured (functional) decomposition to break a program into smaller pieces.
5. Describe the mechanics of parameter passing and demonstrate the difference between call-by-value and call-by-reference parameter passing.
6. Discuss the importance of algorithms in the problem-solving process, identify the necessary properties of good algorithms, and create algorithms for solving simple problems.
7. Use pseudocode or a programming language to implement, test, and debug algorithms for solving simple problems.

8. Discuss the representation and use of primitive data types and built-in data structures.
9. Explain the reasons for using different formats to represent numerical data.
10. Explain basic concepts of secure programming functions.
11. Discuss the properties of good software design.
12. Describe the phases of program translation from source code to executable code and the files produced by these phases; explain the software life cycle and its phases, including the deliverables that are produced.
13. Identify and describe the properties of a variable such as its associated address, value, scope, persistence, and size.
14. Explain how abstraction mechanisms support the creation of reusable software components.

PHYS 2325 University Physics I (Course description and learning outcomes have been revised to include thermodynamics.)

Fundamental principles of physics, using calculus, for science, computer science, and engineering majors; the principles and applications of classical mechanics, including harmonic motion, physical systems, and thermodynamics; and emphasis on problem solving.

Co-requisite: PHYS 2125—University Physics I Laboratory

Prerequisite: MATH 2413—Calculus I

Learning Outcomes

Upon successful completion of this course, students will:

1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
2. Solve problems involving forces and work.
3. Apply Newton's laws to physical problems.
4. Identify the different types of energy.
5. Solve problems using principles of conservation of energy.
6. Define the principles of impulse, momentum, and collisions.
7. Use principles of impulse and momentum to solve problems.
8. Determine the location of the center of mass and center of rotation for rigid bodies in motion.
9. Discuss rotational kinematics and dynamics and the relationship between linear and rotational motion.
10. Solve problems involving rotational and linear motion.
11. Define equilibrium, including the different types of equilibrium.
12. Discuss simple harmonic motion and its application to real-world problems.
13. Solve problems involving the First and Second Laws of Thermodynamics.